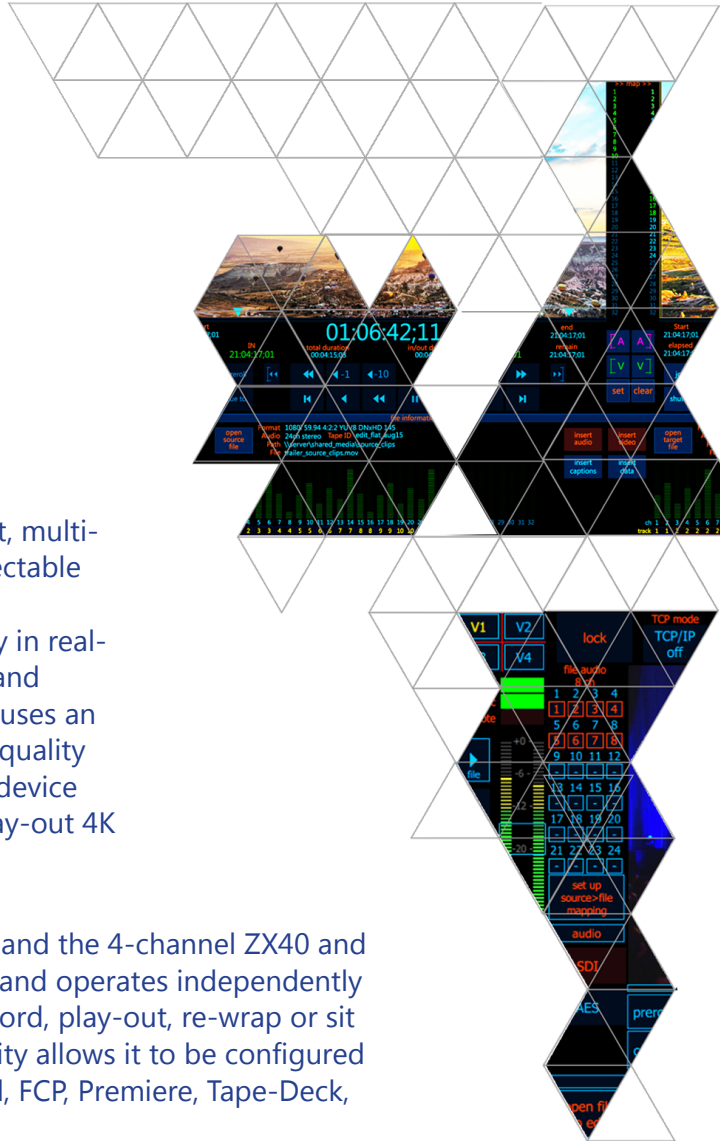# cinedeck
ADVANCED WORKFLOW SOLUTIONS

Cinedeck is a media ingest & encoding server optimized for multi-cam production, post-production and finishing applications. Cinedeck gives Users many of the benefits found in tape-based workflows while gaining the processing power, speed and versatility of file-based technologies. Cinedeck's UI and extensive feature-set has been designed based on years of feedback from a broad-range of Industry professionals – producers, camera operators, editors, engineers, machine-room technicians and facility operators & owners. The result is a product that addresses the needs of real day-to-day production and post-production workflows.

Cinedeck provides real-time, simultaneous, multi-format, multi-codec, multi-channel ingest and playback with user-selectable master & proxy file creation. Files can be recorded simultaneously to multiple destinations and redundantly in real-time. Cinedeck supports every popular codec, wrapper and resolution and encodes edit-ready files. Since Cinedeck uses an Apple ProRes encoding license, it produces the highest quality ProRes files available anywhere. Currently, it is the only device other than on-camera recording that can record and play-out 4K media up-to 60p in real-time.

The Cinedeck product line includes the 2-channel ZX20 and the 4-channel ZX40 and ZX45 models. Each channel has RS422 machine control and operates independently so several functions can take place simultaneously – record, play-out, re-wrap or sit idle. And, Cinedeck's advanced machine control capability allows it to be configured as master/slave with almost any system or device – Avid, FCP, Premiere, Tape-Deck, ProTools, Clipster, Telecine, etc...

One of Cinedeck's many unique features is its ability to perform true file-based insert edits. This feature allows Users to punch into closed, flat-files that have been created anywhere to change frames of audio, video, closed caption tracks or a combination of these without having to re-export or re-render the file. It also allows online editors to assemble edit onto pre-blacked files as edited sequences become available. The internal labor costs and time saving from this feature alone are significant. Cinedeck's insert edit feature supports all the most popular file formats and is resolution and wrapper independent - which means that last minute changes to your deliverables are done fast and efficiently.

ENDLESS WORKFLOW POSSIBILITIES

cinedeck
ADVANCED WORKFLOW SOLUTIONS

Features include:

» File-based Insert Editing

» Digital Cuts from Avid MC

» High Frame Rate Support

» 4K / UHD Ingest and Playback

» JPEG2000
(Math or Visually Lossless)

» AS02 & AS11 Support

» Closed Caption Support

» Growing Files Support

» Transcoding Application for transcode and rewrap

» 8-Input Mode

» Multi-Channel Control via IP

» AMP and VDCP Support

» Full duplex 3G I/O - independent channel control

...and much more

Multi-format:
• 4K / UHDTV-1
• High Definition
• Standard Definition
• 60P / 3G, 4:4:4
• Single Link, Dual Link

Multi-destination Recording
• Redundant recording
• Rollover recording
• Record to: SSD, local drives, SAN and NAS

Multiple Codecs & Workflows:
• AVC-Intra, Cineform (opt.), DNxHD, DPX, DVCProHD, H.264 (streamable), IMX (D-10), JFIF, JPEG 2000 (opt.), ProRes, Uncompressed, XDCAM HD

Proxy & Web Delivery
• Streamable H.264
• Apple, Avid & Cineform Proxy Files

RS-422 Machine Control
• Cinedeck as master or slave
• Cinedeck as player or recorder
• Digital cut from Avid

Non-linear Editors
• Ingest files from Cinedeck
• Ingest SDI from Cinedeck
• Digital Cut to Cinedeck
• Export to Cinedeck

Remote Control
• VNC over LAN, Wireless or Internet
• KVM Control systems
• AMP protocol over IP
• Independent channel control via RS-422

Multi-cam recording
• Studio, OB, ENG, Reality, Dailies
• Shared metadata for grouped clips

PCIe expansion
• 10Gb or 8Gb networking
• Direct attached storage

Telecine Transfers
• EDL based recording
• Multiple formats simultaneously
• Spirit telecine system control

LTO & Data Archive
• Fully file-based recording
• Direct to archive appliances

Automation & Asset Management
• Integration via AMP Protocol
• XML file details for MAM systems

PLATFORMS

cinedeck
ADVANCED WORKFLOW SOLUTIONS

Modular Ingest, Playback & Transcoding

cinedeck ZX

Introducing Cinedeck ZX: your customizable solution for fast and efficient camera-to-post workflows. Modular by design, the Cinedeck ZX platform takes the Cinedeck promise of "Your workflow, your way" to a whole new level.

This fresh, versatile approach lets you choose from an unrivaled selection of Cinedeck advanced software toolsets and powerful hardware configurations. Now you can cost-effectively custom-build a workflow workhorse that meets your specific ingest, playback and transcoding needs for 4K, UHDTV-1, 2K, HD and SD.

As Cinedeck ZX is modular, you always have the advantage of being able to add extra capabilities if your workflow changes – all the while having the potential to make dramatic cost savings. You only buy the functionality you need.

New 64-bit architecture delivers even better performance and more multi-tasking functionality. And, each Cinedeck ZX platform comes standard with many of Cinedeck's renowned features – built-in analysis tools, redundant record and master/proxy per channel – plus your choice of wrapper, with all the codecs supported in that particular wrapper.

Cinedeck ZX: now you really can build your workflow your way, at an even lower cost.

Models	ZX45	ZX40	ZX20
HD-SDI In/Out	4 in / 4 out up to 8 in or out with option	4 in / 4 out	2 in / 2 out
CPU	upgraded	standard	standard
GPU	upgraded	standard	standard
4K / UHD capability	1ch. ingest up to 60p or 2 ch. up to 30p	1 ch. ingest up to 30p	playout only, 1 ch. up to 30p
JPEG 2000 capability	4ch. up to 60fps	2ch. up to 30fps	1 ch. up to 30fps
HFR capability (HD)	4ch. up to 60fps no simultaneous playout	2 ch. up to 60fps	1ch. up to 60fps

Options Each item under Level 1 through 3 purchased separately

Standard Features
Choice of workflow package
Analysis Tools
3D LUT support
Character Overlay support
Closed Caption support [1]
Growing Files support [2]
Master / Proxy + Redundant
Playlisting
Roll-over Record
Segment Record

Level 1
-4K & UHD [3]
-DPX & Uncompressed
-Cineform
-Stereo 3D
-Master Timecode / IRIG [5]
-Cross Conversion *

Level 2
-JPEG 2000 *
-QT / MOV wrapper [1]
-OpAtom wrapper [1]
-Op1a wrapper [1]
-Avid Interplay check-in *
-Advanced Scheduling*
-Switcher App (standalone) *
-Add'l 4ch HD or 1 ch 4K/UHD output [4]
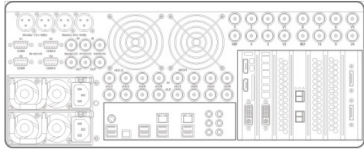-4K / UHD HDMI output [4]

Level 3
-Advanced Deck Control & EDL
-Transcoding App (standalone) *
-Insert Editing *
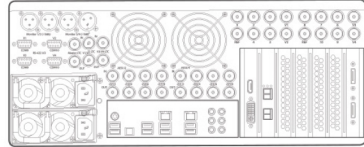-8 input record only *
-Scrolling watermarking *

ZX

Back Panel I/O

ZX 45

ZX 40

ZX 20

RS422 per channel

Audio Monitor Outputs

8 AES Audio in/out per channel pair

LTC In/ Loop Out

Video In / Out

Master LTC & IRIG I/O (optional)

Redundant Power

Legacy Keyboard & Mouse

SPDIF

USB x 6, 2x in front

USB3 x 2

Analog Audio I/O

1GbE x 2

DVI

All ZX Models: DVI & Display POrt ZX45 only: HDMI
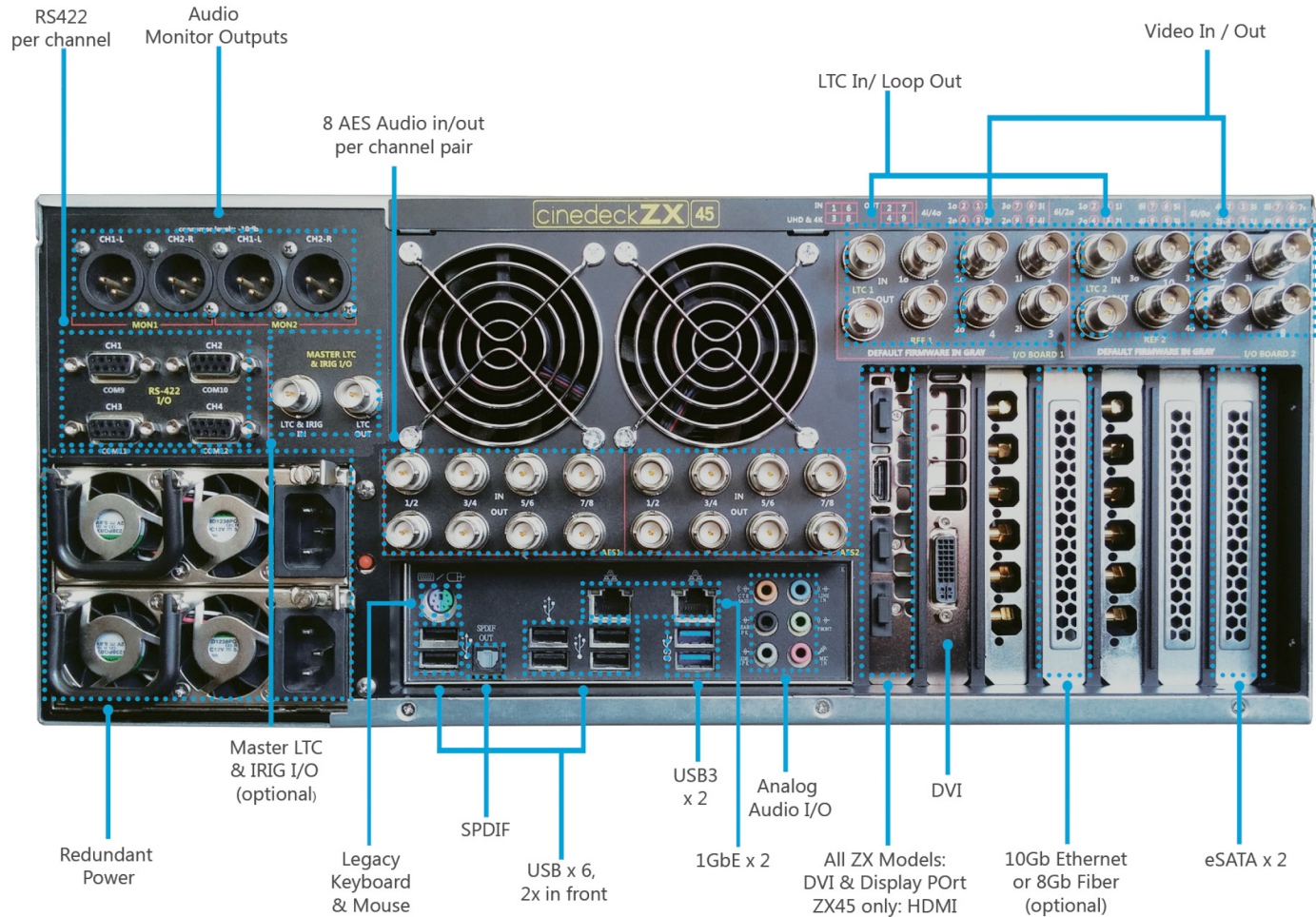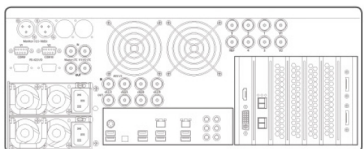
10Gb Ethernet or 8Gb Fiber (optional)

eSATA x 2

cine X insert

FILE TO FILE INSERT EDIT APP FOR MAC OSX

cineXinsert for Mac OSX is Cinedeck's stand-alone, file-to-file insert edit application for installation on your Mac. cineXinsert is a groundbreaking NLE companion application that shaves hours off the time spent making changes. Start saving time and money now, with a tool that will accelerate your post workflow immediately.

Easy to use

Simply open your new material – video, audio, or closed captions in the player, open the target file on the record side and set up and trigger a three-point edit. cineXinsert frame-accurately places the new content into the destination file with no need to re-export the entire program.

Download and go...

cineXinsert uses iLok for license managment. If you already have an iLok account, you can manage your licenses with your existing iLok account. If not, it's easy to set up an account at iLok and purchase the USB dongle.

www.cineXtools.com

Specs

Codecs **ProRes** **AVID** | Avid DNxHD®

JPEG2000 **XDCAM HD** Professional Disc System

AVC INTRA

Wrappers

✔ MOV | MXF OpAtom | MXF Op1A

Resolutions

✔ SD | HD | 2K | UHD | 4K

Audio Support

✔ up to 32 tracks of audio

Closed Caption Support

✔ insert closed captions from source to target

MODEL COMPARISON

cinedeck
ADVANCED WORKFLOW SOLUTIONS

KEY:
Standard: ●   Option: ◼
A - QT/MOV wrapper
B - Op1A wrapper
C - OpAtom wrapper

		ZX 45	ZX 40	ZX 20
PHYSICAL ATTRIBUTES	Dimensions	7"x17"x22" full rack, 4RU	7"x17"x22" full rack, 4RU	7"x17"x22" full rack, 4RU
	Weight	35 lbs	33 lbs	33 lbs
	Rackmountable	yes	yes	yes
	Jog Shuttle	Via external devices	Via external devices	Via external devices
	7" touchscreen	external touch screen supported	external touch screen supported	external touch screen supported
RECORD	Description	4 channel HD/SD (Master & any Proxy per channel)	4 channel HD/SD (Master & any Proxy per channel)	2 Channel HD/SD (Master & any Proxy per channel)
	Mix & Match Encode	●	●	●
CODEC SUPPORT	Apple ProRes (Proxy, LT, Normal, HQ)	◼ A	◼ A	◼ A
	Apple ProRes 4444	◼ A	◼ A	◼ A
	Avid DNxHD	◼ A, B, C	◼ A, B, C	◼ A, B, C
	Avid DNx444	◼ A, B, C	◼ A, B, C	◼ A, B, C
	Avid Meridien JFIF	◼ C	◼ C	◼ C
	CineForm (Filmscan 1, Filmscan2, Keying High, Medium, Low)	◼	◼	◼
	Uncompressed 422 (8 and 10-bit)	◼	◼	◼
	Uncompressed 444	◼	◼	◼
	AVC-Intra 100/50	◼ A, B, C	◼ A, B, C	◼ A, B, C
	DVCPRO-HD	◼ A, C	◼ A, C	◼ A, C
	XDCAM HD 50 / XDCAM EX 35	◼ A, B, C	◼ A, B, C	◼ A, B, C
	H.264	◼ A	◼ A	◼ A
	IMX - D10	◼ A, B, C	◼ A, B, C	◼ A, B, C
	DPX	◼	◼	◼
	JPEG 2000	◼	◼	◼
SIGNAL I/O	3G-SDI / HD-SDI / SD-SDI Inputs	4	4	2
	3G-SDI / HD-SDI / SD-SDI Outputs	4	4	2
	1.5G Dual Link Inputs	2	2	1
	1.5G Dual Link Outputs	2	2	1
	Additional 1.5G outputs	-	-	-
	Additional 3G outputs	◼	◼	◼
	4K / UHDTV-1 YUV input	1 @ 60p	1 @ 30p	playout only
	4K HDMI output	◼	◼	-
	Full Duplex Video I/O (Independent Channel Control)	●	●	●
	Character Overlay on Video Out (Super Out)	●	●	●
	High Framrate, 50/60P	●	●	●
	4:2:2 3D support	●	●	●
	4:4:4 3D support	●	●	-
	50/60P 3D support	●	●	-
	AES Audio Channels (8 per video card)	16	16	8
	Embedded SDI Audio (per video in)	16	16	16
	Balanced XLR Monitor Out	4	4	2
	REF: Analog Color Black or Tri-Level Sync	●	●	●

cinedeck
ADVANCED WORKFLOW SOLUTIONS

MODEL
COMPARISON

continued...

KEY:
Standard: ●   Option: ■

A - QT/MOV wrapper
B - Op1A wrapper
C - OpAtom wrapper

		ZX 45	ZX 40	ZX 20
IMAGE ANALYSIS TOOLS	WaveForm	●	●	●
	Vectorscope	●	●	●
	Histogram	●	●	●
	Focus assist and Zoom	●	●	●
	Clipping	●	●	●
	Preview LUTs	●	●	●
HARDWARE	CPU	Upgraded Server Class (2x)	Server Class (2x)	Server Class (2x)
	GPU	Upgraded	Standard	Standard
	Motherboard	Server Class	Server Class	Server Class
	Video Card	Bluefish Supernova (2x)	Bluefish Supernova (2x)	Bluefish Supernova (1x)
	RAM	16GB	16GB	16GB
CONNECTIVITY	Hot-swappable SSD Support (2.5" Drives)	8	8	8
	Built in card reader: SxS (2x), P2 (2x), CF (2x)	option or via external device	option or via external device	option or via external device
	VGA	-	-	-
	DVI	1	1	1
	HDMI	1	1	1
	Display Port 1.2	1	-	-
	USB2	6 in back, 2 in front	6 in back, 2 in front	6 in back, 2 in front
	USB3	2	2	2
	eSATA	up to 4 (optional config)	up to 4 (optional config)	up to 4 (optional config)
	1Gb Ethernet	2	2	2
	10Gb Ethernet or 8Gb Fiber Channel	■	■	■
	WiFi (support of 3rd party devices)	■	■	■
	Headphone Jack	●	●	●
	LTC Timecode	●	●	●
	IRIG Timecode / Master Clock / Jam-Sync	■	■	■
RESOLUTIONS	4K / UHDTV-1	■	■	playout only
	2K	●	●	●
	HD - 1080i, 1080p, 1080PsF, 720p	●	●	●
	SD - PAL/NTSC, 480p	●	●	●
FUNCTIONALITY	Realtime Upconvert HD > UHDTV-1 or 2K > 4K	■	■	-
	Redundant File Record	●	●	●
	Rollover record	●	●	●
	Segment Record (User defined Chunking)	●	●	●
	User-generated 3D LUT burn-in (Proxy & H.264)	●	●	●
CONTROL	Remote TCP/IP Deck Control App	●	●	●
	3rd party USB Jog/shuttle device support	●	●	●
	RS 422	■	■	■

CUSTOMERS

cinedeck
ADVANCED WORKFLOW SOLUTIONS

broadcast / entertainment (US)

Apple
BET
Nickelodeon
Fotokem
Fotokem NLS
IDC
Modern Video & Film
MSG - Fuse Network
NBC Uni / News Field Shop
WFTV
CNN
Tennis Channel
Oscars
Red Bull Media House
AMV
MTV
Chainsaw Edit
Performance Post
Atlas Digital
Pilgrim
Electus
DIRECTV

Infinity Video System
Vendata
J/KAM Digital
NEP
Dreamworks Animation
Remote Digital Media
Radiant Images
NBC Uni / Allegiance
Paley Center
The Voice
Performance Post,
ILM/Lucas Film,
Lot 5 Media
Thompson-Reuters
Endemol
Jupiter Entertainment

Shows, Films, Live Events:

MTV VMA Awards Show
"The Voice" post production
Discovery's Gold Rush

Oscars Live Event
Peter Pan Live (NBC)
Met Opera
Rolling Stones Concert
HBO's Concert for Valor
MTV VMA Show
MTV SxSW Concert
Nickelodeon Multi-cam Shows:
   Instant Mom, Sam&Cat,
   See Dad Run, Marvin Marvin
Anger Management
Queen Latifah Show
Glass House
Live at Lincoln Center
Million Second Quiz Show
Game of Thrones
Allegiance (NBC)
Dancing with the Stars (web)
127 Hours
TED & TEDWomen 2015 Conference
New Orleans Jazz Fest 2015
DIRECTV: Big Knockout Boxing Event

government / houses of worship / research / education (US)

NASA
   Kennedy Space Center
US Navy
   Surface Warfare Center Dahlgren
US Army
   Redstone Test Center

Bellevue Baptist Church
Valley Baptist Church
Watchtower
First Baptist Jacksonville

WHOI
Massachusetts General Hospital
Vulcan
East Florida State University

international

Legislative TV, Canada
Shaw Media, Canada
FN Tech, Canada
Fox Telecolombia, Colombia
Televideo, Colombia
Dubai TV / DMI, Dubai
Reuters HK, Hong Kong
Opus Production, Israel

TV Unam, Mexico
Marinetek, Norway
TVP, Poland
TV Chosun, S. Korea
EBS, S. Korea
Ministry of Arts, Singapore
Workpoint Entertainment, Thailand
PDG Helicopters, UK

Royal Opera House, UK
Shooting Partners, UK
Op Pankki, Finland
ABS-CBN, Philippines

Shows & Films:
Chopped Canada
Big Brother Canada

FILE-BASED INSERT EDIT

Acclerating your post finishing and online workflow

WHY DOES FILE-BASED INSERT EDIT MATTER?

File based workflows have completely changed the media production landscape but the inability to directly change or fix a deliverable program file, wastes time and resources. Simply put, Cinedeck's Insert Edit allows you to replace video, audio and closed captions in closed flat files. Insert Edit eliminates extensive re-rendering and re-exporting and works with the most popular deliverable formats including DNx-HD, ProRes, AVC-Intra, XDCAM HD and JPEG2000. Fixes and changes are now easy!

Cinedeck's revolutionary File-based Insert Editing is wrapper and resolution independent so instead of exporting your 4K, HD or SD file again to integrate one small change, you can simply insert the change into the existing file. Cinedeck inserts are controlled from Avid Media Composer, Adobe Premiere, Apple Final Cut, Avid Pro Tools, Standard VTRs and telecine systems via RS-422.

SUPPORTED CODECS:
ProRes, XDCAM HD, DNxHD, DNxHR, AVC-Intra, JPEG2000

SUPPORTED RESOLUTIONS
SD, HD, 2K, UHD, 4K

SUPPORTED NLEs
Media Composer, Final Cut, Premiere, Flame, Pro Tools

cinedeck
ADVANCED WORKFLOW SOLUTIONS

www.cinedeck.com

WHAT DOES IT DO?

Cinedeck Insert-Edit eradicates the time and resource-sucking dilemma of repeating an entire export and QC process, just to make a small change in a program by giving you direct access to the video, audio and Closed Caption essence in your flat deliverable file. Specifically, Insert Edit accurately replaces content in a file based on timecode in and out point.
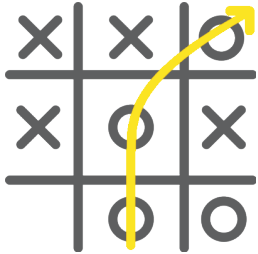
RADICALLY NEW WORKFLOW

By allowing direct changes and eliminating re-rendering, re-exporting and extended QC sessions, Cinedeck Insert-Edit delivers a fundamentally new and improved post workflow. Unlike Quicktime reference files or the process of editing metadata in a MXF file, when changes are completed using Cinedeck's Insert-Edit, you are actually replacing parts of the original flat video and audio essence. Moreover, because changes are written directly into the essence, file compatibility is maintained. It's the same file before and after inserting, just some audio or video frames were replaced.
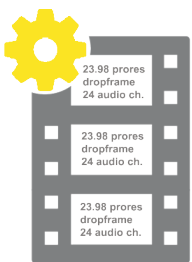
WHICH FILE TYPES?

[mov | mxf opatom&op1a]

ProRes, XDCAM, AVC-I, JPEG2000, DNxHD
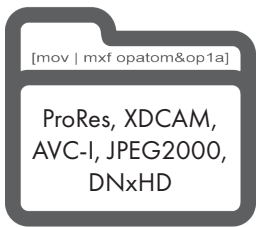
Cinedeck Insert-Edit currently supports ProRes, DNxHD, AVC-lntra, XDCAM HD and JPEG2000 files. The content can be contained in a MOV (quicktime), MXF Op1a, or MXF OpAtom wrapper and can be from anywhere. Files might come from Final Cut, Media Composer, Premiere or any number of other production systems ... In any case, they do not need to be Cinedeck generated but of course, Cinedeck files can be edited as well. As long as your file is standard, Insert-Edit can make changes in it, saving you time and money.
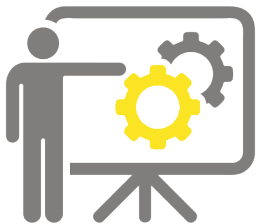
HOW DOES IT WORK?

Cinedeck Insert-Edit understands exactly where content is located in your files, somewhat the same way a tape machine understands where frames reside on a tape, allowing you to accurately go in and replace specific video, audio or caption data. This means that instead of exporting an entire program after making a change on your timeline, you just place the new content into the existing file. Digital Cuts and inserts can be performed directly from finishing system like Premiere, Media Composer and Final Cut Pro, directly to your Cinedeck, streamlining your work from start to finish.

VIRTUAL MASTERING MEDIA (VMM)

23.98 prores dropframe 24 audio ch.

23.98 prores dropframe 24 audio ch.

23.98 prores dropframe 24 audio ch.

VMM are pre-formatted containers that content can be inserted into, ANYWHERE, Anytime. Working with a pre-striped VMM is analogous to using a blacked tape in that you create a file with format, codec, timecode and up to 32 audio tracks but instead of real-time like tape, generating blacked files is significantly faster. Also, as with tape, you can save a library of pre-blacked-files on disk (a virtual shelf of sorts) and simply copy one to your workspace, saving time no matter what. Once you have your blacked file, Cinedeck's insert editing is used to place content into the file and Full-Confidence recording with VMMs allows you complete random-access playback of the file while recording.

SAVE TIME & MONEY

Insert-Edit is all about eliminating-complete show exports and full QC sessions just to make small fixes by directly accessing and changing flat files, saving you hours, sleep, hair and $$$. Instead of massive multi-step dances to produce new corrected deliverables, with Insert-Edit in your arsenal, you simply change what needs changing and reduce what would have been a multi-hour re-export and QC process to a few minutes.

PRO TOOLS SUPPORT

32 ch

Instead of dealing with tape or transferring finished audio to your video editors, using Pro Tools' transport controls, your sound team can directly punch in and out of video using Cinedeck's insert record to edit master files in real-time Or insert the mix with a standard 3-point edit. Whichever way you work, there is no need to re-encode from tape or wait for other departments to finalize your deliverables. And, with Insert-Edit, up to 32 audio tracks are available to manage the most complicated mixes.

No more re-export, re-encode, or re-QC

Although nothing short of a miracle, non-linear editing has some significant limitations. If a change to a program is required, even just a simple shot change, it is necessary to go back to the time-line, make the changes and then, re-export the complete program. That process can be excruciating, especially for long form programming. And then, the resulting file needs to be run through quality control again, which if nothing else, means someone watching the program from start to finish, wasting time, money and in some cases, preventing shows from being delivered on time.

As a work-around, some post-production facilities export edited shows to tape and use tape-based insert edits for changes. Tape can also provide a pathway to delivering file types not directly supported by their particular finishing systems. Using File-based Insert Edit, you can frame-accurately replace specific frames of audio, video and closed captioning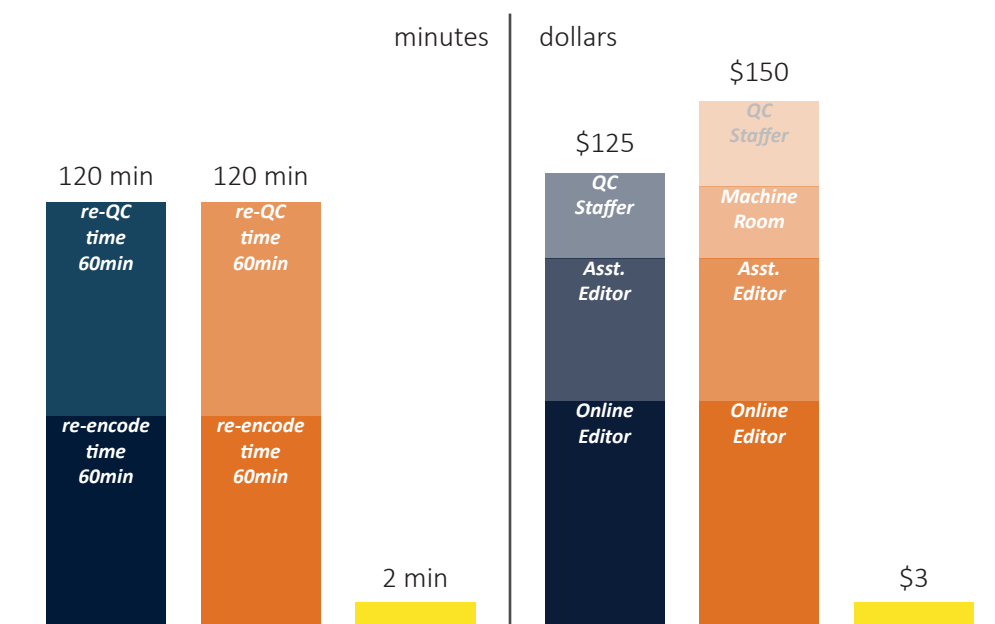 without the need to completely re-export or re-render. Since only the newly inserted segments have changed, only those segments need to be QC'd. File-based Insert Edit brings the advantages of tape-based workflows to files.

The Results

We asked some industry friends to help us understand the cost savings afforded by insert edit and here's what they came up with. For tape intermediate and NLE export workflows, the time for any change to an hour long program is the edit time plus about an hour to export and an hour to QC so two hours of labor at $125 ~ $150 per change.

Legend

- NLE Export
- Tape Intermediate
- File Based Insert Edit

minutes

- **120 min** — re-QC time 60min / re-encode time 60min (NLE Export)
- **120 min** — re-QC time 60min / re-encode time 60min (Tape Intermediate)
- **2 min** (File Based Insert Edit)

dollars

- **$125** — QC Staffer / Asst. Editor / Online Editor (NLE Export)
- **$150** — QC Staffer / Machine Room / Asst. Editor / Online Editor (Tape Intermediate)
- **$3** (File Based Insert Edit)

How is this possible?

With Cinedeck's Insert Edit, making a change takes about as long as the change itself, so a 1-minute insert takes 1 minute to execute and another 1 minute to QC. Full confidence record saves even more time because you can simultaneously record and QC, cutting the total time in half. This means labor costs are slashed to a fraction of what is required for tape intermediate or NLE Export workflows.

VIRTUAL MASTERING MEDIA

Working with Cinedeck's blacked files for delivery versioning and post finishing

Today, almost all program deliverables are file-based; and while there are definite benefits to file-based workflows, there are limitations as well. Most efficiency limitations for file-based workflows stem from the inability to change the master flat file once it's been rendered and exported. Take the simple example of different slates for different customers. For every slate change, you need to re-export the entire program AND you need to QC each file.

With Cinedeck's File-based Insert Edit, we're improving the efficiency of file-based workflows by applying the capabilities of tape. Create a library of VMM – Virtual Mastering Media – that is analogous to a library of pre-striped black tapes. Since VMM are pre-striped black "files", you only create your VMM library once. Thereafter you simply copy the VMM you need for your project to your local work-space. In addition, creating a VMM is faster than real-time. Depending on codec and bandwidth, it can be as fast as 1/10th real-time.

Note:

Cinedeck VMM is a workflow leveraging File-based Insert Edit technology. Insert-edit can be used with any pre-existing files for supported codecs, resolutions and wrapper.

How it's done…

Insert your program to a VMM to create the master file and copy the VMM for as many deliverables as are required and insert the appropriate slates. Deliverables with multiple slates can be completed within minutes, not hours, because File-based Insert Edit allows you to simply drop-in the new slate to a finished flat file. Not only do you save time in the exporting process for each successive slate change, you also save the time that you would have devoted to QC-ing each file.

1 Copy the required VMM from your library to your local workspace.

2
- Insert your final output to your VMM.
- Use the Trim Tool to adjust the length of your master file.
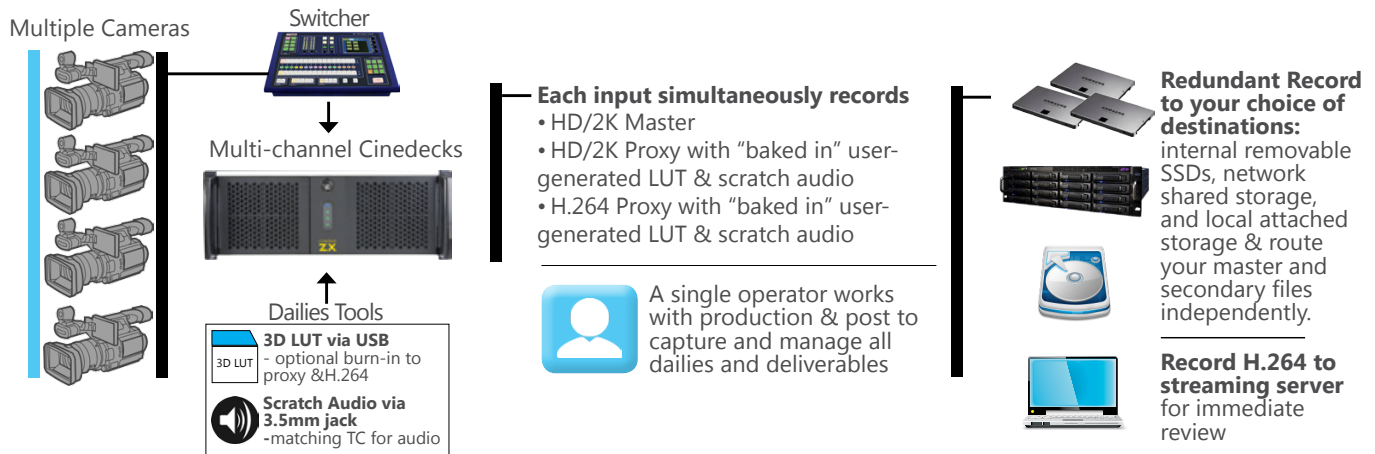- QC your master file.

3
- Copy the master file by the number of slates required. Ex: 5 delivery slates, 5 copies.
- Rename each file copy with the correct slate title.
- Insert the different slates to each file copy.
- DONE! Since you already QC'd the master file, you will only need to QC the new slates.

WORKFLOW

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ADVANCED WORKFLOW SOLUTIONS

Multi-Cam Comparison

Cinedeck recorders smooth your multi-camera productions from acquisition through dailies to post, allowing the most efficient & cost-effective work f-l-o-w.

Without Cinedeck, you are throwing away time and money for these typical multi-camera productions.

Multiple Cameras   Switcher

Multi-channel Cinedecks

Dailies Tools

3D LUT via USB
- optional burn-in to proxy &H.264

Scratch Audio via 3.5mm jack
-matching TC for audio

Each input simultaneously records
• HD/2K Master
• HD/2K Proxy with "baked in" user-generated LUT & scratch audio
• H.264 Proxy with "baked in" user-generated LUT & scratch audio

A single operator works with production & post to capture and manage all dailies and deliverables

Redundant Record to your choice of destinations: internal removable SSDs, network shared storage, and local attached storage & route your master and secondary files independently.

Record H.264 to streaming server for immediate review

✅ **Start editing right away;** No downtime and transcode costs for post deliverables
Record your Master & Proxy to shared storage for immediate access for post

✅ **HD Master & Proxy have matching metadata for easy matchback**
Proxy with burned in LUT and scratch audio is ready to edit

✅ **Instant Review of your files ~** Producers can start reviewing while the show is still recording. No downtime when reviewing scenes and takes with a streaming server sending live video to your phone, tablet or laptop.

Multiple Cameras & Multiple Recorders:
each camera requires a recorder or onboard capture

Each external or onboard recorder captures a single HD Master to a single drive

STOP
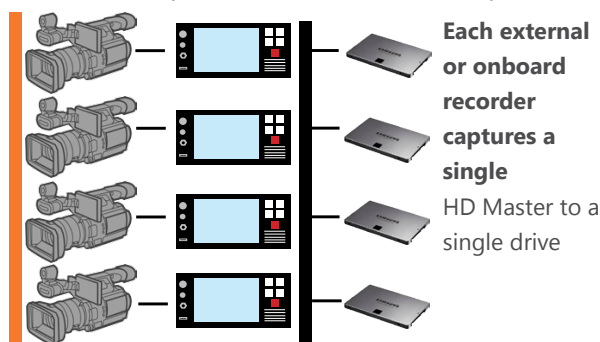
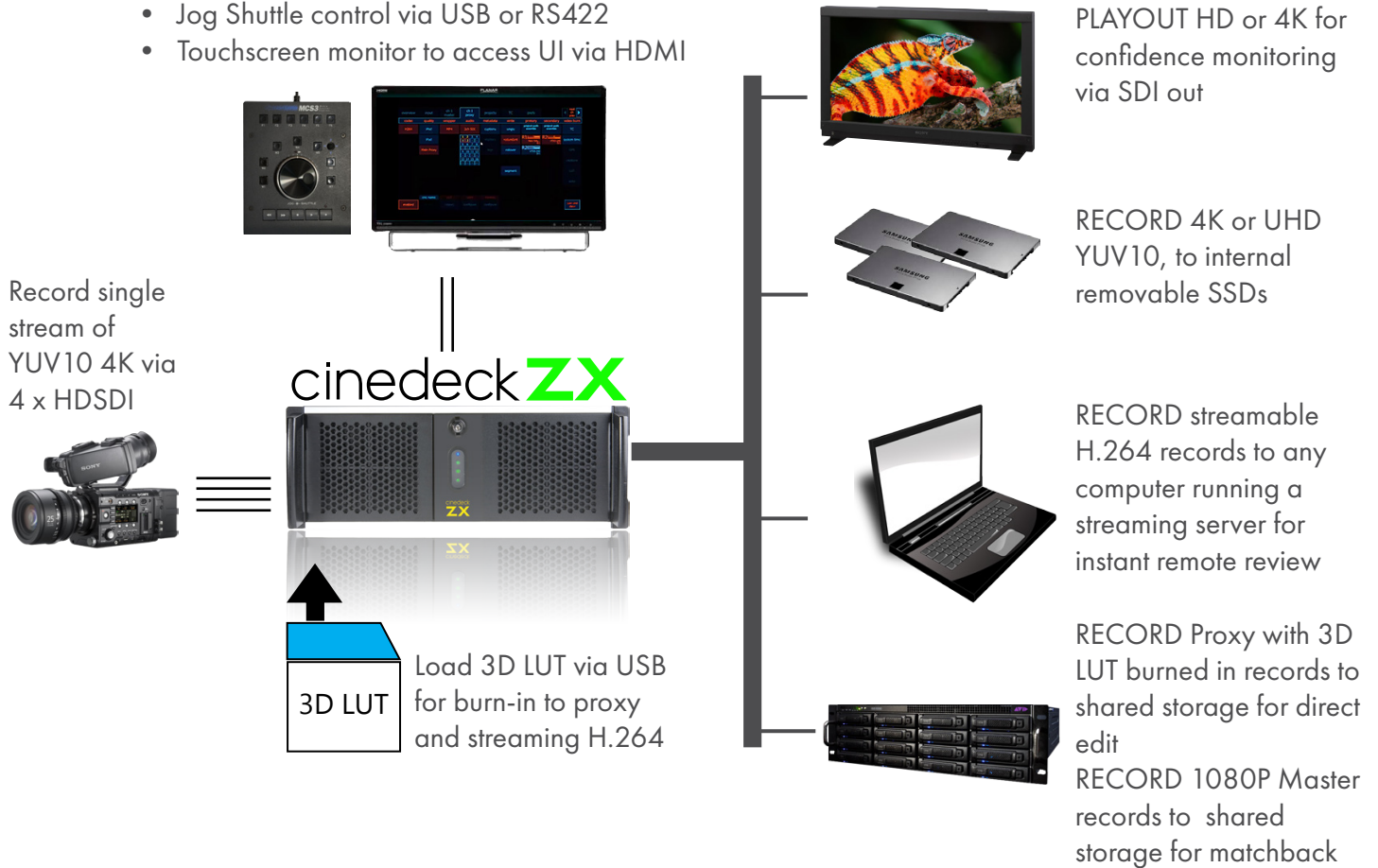**The way you are doing it now:**

⊘ **Dailies need to be created for review**

⊘ **Files need to be renamed in a meaningful way for post**

⊘ **Files need to be transcoded to proxies and transferred to shared storage**

⚠ **Eliminates dailies-system and operator costs.** Cinedeck offers everything you need in a single easy-to-use appliance

⚠ **Human error is introduced when files are manipulated and renamed.** Cinedeck recorders relieve the headache of renaming hundreds of clips, by allowing the operator to setup proper file names before recording starts

⚠ **Transfers, transcodes and rewraps prevent editors from working right away.** This means editors have less time to spend editing! And assistants who take up time and resources need to be hired. Cinedeck's unique ability to record redundant files and route them independently means that post will have edit-ready files when and where they need them.

4K / UHD YUV10

Exploit the power of Cinedeck MX and ZX in your 4K workflow, and instantly create all your deliverables. The MX can encode a single 4K or UHDTV-1 YUV source up to 30fps, while the ZX-45 can encode a single 4K or UHDTV-1 source up to 60fps, both at 10-bit resolutions. Simultaneously, an HD master, Lo-Res proxy, and streamable H.264 with shared metadata, are recorded to the internal SSDs, or your SAN and can be immediately accessed for archive and editorial.
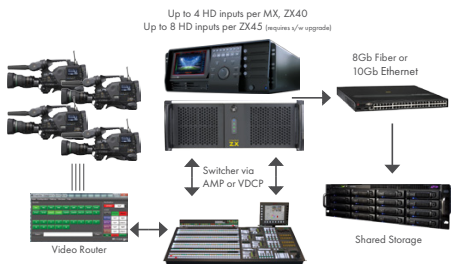
- Jog Shuttle control via USB or RS422
- Touchscreen monitor to access UI via HDMI

PLAYOUT HD or 4K for confidence monitoring via SDI out

Record single stream of YUV10 4K via 4 x HDSDI

cinedeck **ZX**

RECORD 4K or UHD YUV10, to internal removable SSDs

RECORD streamable H.264 records to any computer running a streaming server for instant remote review

3D LUT

Load 3D LUT via USB for burn-in to proxy and streaming H.264

RECORD Proxy with 3D LUT burned in records to shared storage for direct edit
RECORD 1080P Master records to shared storage for matchback

Record all deliverables simultaneously	Destination Drive	
4K YUV10 - 4096 x 2160 Ultra HD YUV10 - 3840 x 2160 in ProResHQ or Cineform @ 23.98, 24, 25, 29.97, 59.94fps	• Internal SSDs • SAN/NAS via 8Gb Fibre or 10GbE	Archive or 4K matchback
HD/2K High Res (HD is center crop or scale from 4K)		HD Master for editorial matchback
HD/2K Proxy with "baked in" user-generated LUT		Proxy file for edit
H.264 Poxy with "baked in" user-generated LUT		Instant Review

WORKFLOW

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ADVANCED WORKFLOW SOLUTIONS

STUDIO PRODUCTION

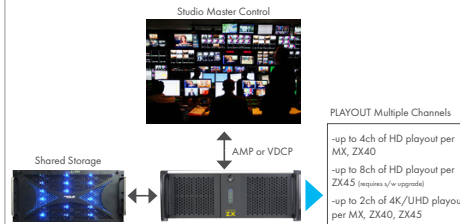Cinedecks are multi-channel, multi-codec, stand-alone recording/ingest appliances. They can be transported and connected just as a tapedeck, provide all of the typical features users are accustomed to, while adding significant enhancements. These include: 7" touch display with analysis tools; the ability to encode the content as files which are natively compatible with whatever post-production environment you require; and files that can be written to virtually any storage destination you prefer.

Up to 4 HD inputs per MX, ZX40
Up to 8 HD inputs per ZX45 (requires s/w upgrade)

8Gb Fiber or
10Gb Ethernet

Switcher via
AMP or VDCP

Video Router

Shared Storage

PLAYOUT

With Cinedecks in the play-out workflow, you are not forced to export or transcode in order to make your content compatible with a "chosen" supported play-out flavor.

When combined with the AMP and VDCP protocol for controlling Cinedecks remotely, you can see how play-out can be dramatically simplified. Additionally, Cinedeck's built-in playlist manager lets you build simple timelines, containing multiple clips and sub-clips, eliminating the need for working in a separate edit system to prepare content for play-out.
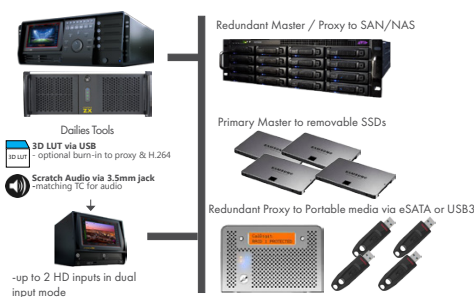
Studio Master Control

Shared Storage

AMP or VDCP

PLAYOUT Multiple Channels

-up to 4ch of HD playout per MX, ZX40

-up to 8ch of HD playout per ZX45 (requires s/w upgrade)

-up to 2ch of 4K/UHD playout per MX, ZX40, ZX45

Have questions about how Cinedeck can help with your workflow?

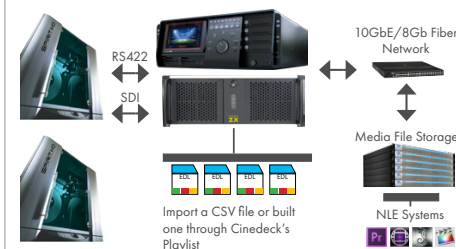## Contact us:

support@cinedeck.com

ON-LOCATION PRODUCTION

Cinedeck removes the stress and strain from mobile OB production. While outside broadcast productions have commonly utilized tapedecks, the environments where production equipment is housed, often puts significant limitations and strain on operators and the gear itself. Since Cinedeck creates master/proxy files simultaneously and redundantly your client walks away with a set of the proxy files to start editing right away as soon as the event or show ends.

Redundant Master / Proxy to SAN/NAS

Dailies Tools

3D LUT via USB - optional burn-in to proxy & H.264

Scratch Audio via 3.5mm jack -matching TC for audio

Primary Master to removable SSDs

Redundant Proxy to Portable media via eSATA or USB3

-up to 2 HD inputs in dual input mode

TELECINE

With Cinedeck's ability to replace a traditional tapedeck, the whole process of telecine has become much less cumbersome. All Cinedecks can be controlled directly via RS422 protocols, making them the streamlined link between telecine and archive/post production operations.

Each encode paths can be independently triggered via EDL files, allowing the automated creation of both digital master and proxy versions of your reels.

RS422

SDI

10GbE/8Gb Fiber Network

Media File Storage

EDL EDL EDL EDL

Import a CSV file or built one through Cinedeck's Playlist

NLE Systems

ENCODE, ARCHIVE & MEDIA MANAGEMENT

Cinedecks allow easy encoding from a multitude of sources. Each channel can be individually set to different framerates, framesizes and bit-depths, and simultaneously record master and proxy files to redundant locations. Metadata is embedded into each file allowing simple, searchable metadata for robust media management. Cinedeck now supports archival codecs and wrappers like JPEG200 in AS02 and AS11 wrappers, while also supporting highframe rates and resolutions in UHD and 4K giving you flexibility all in one appliance for your archival needs.

Single or Multiple Decks on Network

NLE Systems

Asset Management

Media File Storage
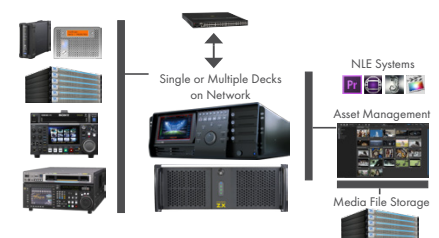
Cinedeck's workflow flexibility starts with software and much of the development is a collaboration between our end-users and the Cinedeck design team. And, with a company philosophy dedicated to innovation, Cinedeck is proud to present ground-breaking features like File-based Insert Editing.

"YOUR WORKFLOW, YOUR WAY" is achieved through user interface options tailored for your specific needs. Use two or more UI applications together to create a custom workflow. For example, combine the Remote Control Application with the Deck Control UI to achieve a custom scheduling server that works with or manages one or more tapedecks, telecine systems, or other hardware controlled via RS422.

For more U/I views, visit: www.cinedeck.com/user_interface.

FILE-BASED INSERT EDIT

Cinedeck Insert-Edit solves the time and resource-sucking problem of repeating through an entire export and QC process, just to make a small change in a program, by giving you direct access to the video and audio essence in your flat deliverable files.

In other words, Insert Edit allows content to be accurately replaced in a file based on timecode in and out points, pretty much just like working on tape.

Insert-Edit can reduce a multi-hour or multi-day re-export and QC process to just a few minutes by editing new content directly into a ProRes, DNxHD or AVC-Intra flat deliverable file.

8-INPUT MODE

Cinedeck ZX45 typically has 4 inputs for HD or SD recording. With a quick firmware change, you can now have up to 8 independent record channels on a ZX45, effectively cutting your production costs in half.

In 8 Input mode, each channel can still be set up with different frame rates and encoder settings.

Each channel can be expanded to allow full configuration and management. Also, you can gang some or all channels, to trigger record and stop events simultaneously.

USER
INTERFACE

cinedeck
ADVANCED WORKFLOW SOLUTIONS
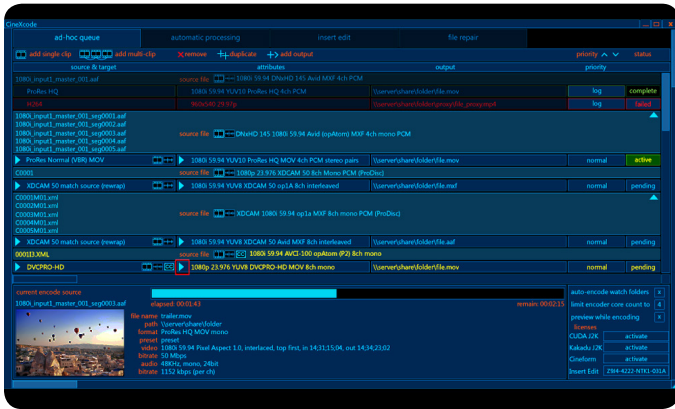
TRANSCODE & REWRAP TOOL

Cinedecks support a broad range of codecs and wrappers which can be leveraged for traditional recording as well as transcoding and rewrapping.

There is simple base-band, channel to channel, transcoding and a new file-to-file transcode interface, allows you to select the most efficient way to get your files where they need to be, as fast and efficiently as possible.

Within this application, you can reroute audio, apply a LUT, apply scrolling watermarking or a timecode burn, as well as trim, crop scale and merge your clips.

IP MULTI-CHANNEL CONTROL APP

Cinedeck's new multi channel control application is IP based which means you can control multiple channels of record and playback across multiple decks from anywhere.Like the version 1 Cinedeck MCC app, this application is completely independent from the Cinedeck main application and since it is IP based, it can run on your desktop, laptop, tablet or mobile device.

ADVANCED DECK CONTROL

Each Cinedeck channel emulates one VTR and can be controlled independently so just one Cinedeck MX or a 4 channel ZX series machine replaces up to 4 tape decks! And, each channel can be placed in a variety of modes allowing the Cinedeck to be controlled via several protocols; RS-422, AMP, VDCP, or it can be set up to allow control by Clipster or even a Spirit Telecine Controller.

UNRESTRICTED PROJECT MANAGEMENT AND FILE NAMING

Cinedeck recorders allow for extremely easy and flexible project management, folder and file naming. All folder and file names can be customized to be precisely what you want so they will exactly match the requirements of your specific workflow. Additionally, Cinedeck's project management tools allow you to:

1. Record in any folder
2. Export and Import Project Settings and copy settings across channels
3. Fully independent file and folder naming per file
4. Create names by combining variables (Wildcards), manual typing and copy & paste

ZX 20-40-45 FEATURES

Cinedecks are multi-functional; multi-channel, multi-codec, multi-destination, digital file-based recorder / players with full duplex 3G SDI I/O. For 2K, HD and SD, ZX is optionally 2 or 4 channels...

1. 4K & UHD Support
2. AES Audio
3. Analog Audio
4. Analysis Tools
5. Audio Delay
6. Audio Mapping
7. AS-02, AS-11 / DPP1
8. BNCs
9. Channel Overview
10. Character Overlay
11. Closed Captioning
12. Codecs Supported
13. Color Depth
14. Color Sampling
15. Cross Conversion
16. Edit While Record
17. EDL Auto-record
18. Embedded Audio
19. External Reference
20. File Naming
21. Formats
22. Gang Mode
23. GPS
24. Growing Files
25. H.264
26. HD to 4K/UHD UpRez
27. I-Frame & GoP
28. Insert Editing
29. Interplay Check-in
30. IRIG Timecode
31. IT & Connectivity
32. Jam Sync
33. LUTs
34. Master & Proxy
35. MOV Flexibility
36. Non Cinedeck Clips
37. Pause Record
38. Play Multiple Clips
39. Playback
40. Playlisting
41. Presets
42. Project Locking
43. RAID Attached Drives
44. Record Time
45. Redundant Files
46. Redundant Power
47. Remote & Control
48. Roll-over Recording
49. Scene Names
50. Scheduling
51. Segment Record
52. Signal Generator
53. Storage Options
54. Telecine Control
55. Timecode
56. Timecode Offset
57. Touch Display
58. Transcoding
59. Upcoming Features
60. Updates
61. VBR/CBR Encoding
62. Wrappers
63. XML data

1. 4K :
Cinedeck ZX45 supports 4K YUV (4096x2160) and UHDTV-1 YUV (3840x2160) recording while simultaneously writing HD master files, proxy files and streamable H.264 files, all with associated metadata and the file naming you choose, to smooth the process of match-back between the various files.

o ZX45 supports one 4K YUV or one UHD YUV source and deliver;
- 4K / UHD or
- HD master files
- HD Proxy files
- Streamable h.264 files which can be delivered live by a streaming server

Streamable h.264 files which can be delivered live by a streaming server (note: In some instances, internal recording of full 4K and UHD may require setting SSDs into a RAID configuration. Additional information will be available with the 4K releases.

FEATURES

2. AES Audio:
All recorders can accept 8 AES audio channels per input pair with the ability to selectively toggle on & off and map the destination channels. All 8 can be received by both video inputs.

3. Analog Audio:
For legacy analog audio situations, all decks support the Scarlett 2i2 USB audio interface from Focusrite which provides two mic/line balanced XLR / TRS audio inputs through high quality preamplifiers. For scratch audio tracks, Cinedeck can also accept two channels of unbalanced audio via the rear line level mini jack connection. Additional USB audio adapters with different input choices are being considered for inclusion in the future.

4. Analysis Tools:
All decks provide digital peak audio meters, adjustable monitor levels and monitor channel selection as well as a complete set of video analysis tools including:
 o Waveform
 o Vector scope
 o Histogram
 o 1:1 pixel picture zoom
 o Adjustable video peak detect
 o Focus assist
 o User selectable aspect ratio, safe area and grid overlays.

5. Audio Delay:
Version 4.3 includes audio delay in milliseconds which can be added {per channel} to SDI, AES and Analog audio sources. Each channel can be delayed up to 999 milliseconds.

6. Audio Mapping:
Version 4 added the ability to selectively toggle on & off and map the destination channels of incoming audio i.e., a system could be setup to record incoming channels 1 & 2 and 7 & 8 to channels 1, 2, 3 & 4. Audio mapping will be enhanced in future versions of the system software.

7. AS-02, AS-11 / DPP1:
 o AS-02 and AS-11 are MXF Op1a file format recommendations from AMWA - the Advanced Media Workflow Association.
 o AS-02 is specifically oriented towards addressing "the problem of having a common file format in a facility that has to handle many input formats and make many output formats."
AS-11 was further developed to specify "a vendor-neutral subset of the MXF file format to use for delivery of finished programming from program producers and program distributors to broadcast stations" while the UK-DPP (Digital Production Partnership has designed a set of delivery standards, procedures and technical requirements, which conform to the AS-11 v1.0 specification and are constrained in the UK DPP AS-11 shim. Cinedecks running version 4.3 and later software can record AS-02 and AS-11 / DPP compliant MXF content and later versions of the software provide more access for creating and editing the included metadata.

8. **BNCs:**
For traditional infrastructure, Cinedecks are connected using industry standard HD/SD-SDI cabling allowing the decks to be easily integrated in place of standard video recorders.

9. Channel Overview:
Version 4.1 added a full 'Overview' of the complete state of each channel on a system with the ability to import, export and copy settings between channels.

10. Character Overlay:
All decks provide control of character out as an overlay on the user interface and or the SDI video output and or as a

burn-in to he encoded video with fully adjustable position, size and color.
  o Channel overlays can be independently setup with different character styles, sizes, positions and colors.
  o ZX has dual outputs for each SD/HD channel allowing simultaneous clean and character overlay output.

11. Closed Captioning

Cinedecks support recording and playback of CC Closed Caption data with any codec wrapped as MOV. A later
release will include Closed Caption support with additional file wrappers.

12. Codecs Supported
All Cinedeck recorders currently support native SD and HD with the following codecs using a wide choice of bitrates
(quality settings) and file wrappers:

  o Apple ProRes
  o AVC-Intra
  o Avid DNxHD
  o Avid JFIF
  o Cineform (optional)
  o DPX
  o DVCProHD
  o H.264 (streamable)
  o IMX (D-10 MPEG)
  o JPEG 2000 (optional)
  o XDCamHD
  o Uncompressed

13. Color Depth
All Cinedecks support true 8bit and 10bit inputs and recording.

14. Color Sampling
All Cinedecks support 422 sub-sampling and in some cases 444 recording.

15. Cross Conversion
All Cinedecks have a wide selection of up and down standards conversion at the input and output which can be combined
to provide full cross conversion i.e., up convert SD to HD on record or down convert HD to SD for monitoring, etc.

16. Edit While Record
See "Growing Files:1" on page 5

17. EDL Auto-record
Each Cinedeck channel supports auto-record through the use of a simple ASCII text EDL to control the starting and
stopping of recording events based on an incoming timecode. Version 4.3 enhanced EDL record with deck control
providing tape transport control during auto-record from a VTR. Included in the Cinedeck interface is an EDL editor for
creating and modifying EDLs for each channel. Additionally, Cinedecks running the latest 4.3 version or later support
importing CMX 3600 EDLs.

18. Embedded Audio
Cinedeck recorders can accept 16 SDI embedded audio channels per input.

19. External Reference
Cinedeck accept external house reference (Tri-Level sync or Black Burst).
The 4 channel ZX models are designed to accept external LTC and house reference for each pair of channels so you can
optionally dedicate each channel pair to different tasks.

20. File Naming
Cinedeck version 4 and later provides an extremely flexible and powerful project based naming system which allows the

integration of user entered text and real-time data (wildcard variable substitution) such as the current time or starting timecode in file names. This system allows users to generate virtually any file name and folder structure.
- o There are no Cinedeck restrictions on folder locations or the depth of nested folders.
- o Alternatively, an already existing destination folder can be navigated to and selected per encode.
- o The on-screen keyboard or a USB keyboard can be used along with copy & paste.
- o Easy to use template buttons for the real-time variables are available via the on-screen keyboard.
- o Six user created variables can be added to each project.

21. Formats
Cinedeck ZX45 can record and play the following formats:
- o 4K   UHD
- o 1080i (1920 X 1080) - 50, 59.94, 60
- o 1080i (1440 X 1080) - 50, 59.94, 60
- o 1080p - 23.98, 24, 25, 29.97, 30, 50*, 59.94*, 60*
- o 720p - 50, 59.94, 60
- o NTSC - 23.98, 59.94
- o PAL – 25, 50
- o ZX support recording 4K YUV (4096x2160) and UHDTV-1 YUV (3840x2160), for example from a Sony F55 camera.

   *ZX45 can record four channels at 50/60P

22. Gang Mode:
Cinedecks running version 4 and later, allow the user to easily gang together two or more internal channels from the user interface for simultaneously triggering record and playback. To reduce the strain on spinning disc file systems, these decks also support a user defined staggered gang, allowing channels to be triggered sequentially with a specified time delay instead of simultaneously.

23. GPS:
All Cinedecks accept data from an 'off the shelf' Garmin model 18x GPS USB receiver and record the data with the incoming video and audio and or burn the data into the video image.

24. Growing Files
(Also known as "Edit while record" - Support on Cinedeck for growing files is available in release 4.3 with the MOV and Op1A wrappers and is being refined. In Adobe Premiere, XDCamHD can be recorded to a destination which is accessible by the edit system and content can be imported, refreshed and edited while recording is still underway. Similarly, Final Cut Pro can access MOV files while recording is still occurring to accessible storage. The editing of live recordings is currently only supported when external edit systems are used and is not supported by AMA (Avid Media Access). Support for editing of live recordings by the Cinedeck playlist manager will be added in a future release.

25. H.264
Cinedecks provide the capability to encode h.264 at bitrates and frame sizes appropriate for viewing on iPhone, iPad, full screen and others. From version 4.3, Cinedeck offer streamable H.264 files as well.

26. HD to 4K/UHD UpRez:1
Cinedeck ZX support specialized real-time scaling algorithms which provide excellent results for uprezzing cell style animation and live action HD video sources to full 4K or UHDTV1.

27. I-Frame & GoP
Cinedeck support I-Frame recording as Uncompressed, DNxHD, ProRes and more as well as Cinedecks support Long GOP recording with XDCamHD and h.264 at various bit rates.

28. Insert Editing
Simple, partial video and or audio replacement of content in an existing file. For files wrapped as mxf OpAtom, Op1a or MOV, you can take two clips (a source and a destination) and perform a frame accurate insert edit, writing the source into the destination. The process takes just a few minutes which in many situations, will be a major time savings over re-rendering an entire program.

29. Interplay Check-in:
When utilizing Op1a and MOV file wrapping, Cinedeck recorded content can easily be checked into an Avid Interplay environment using Medway from Marquis Broadcast. Medway can automatically check content in or users can manually select specific clips or sub-clips to process.

30. IRIG Timecode
Cinedeck recorders can accept an external IRIG-B timecode input and display the data on screen and optionally burn the data into the recorded video while recording the data with the incoming source.

31. IT & Connectivity
Cinedecks can have a variety of IT connections including; USB2, USB3, eSATA, VGA, DVI, HDMI, Ethernet and Display Port. MX and ZX also include a PCIe slot for optional 8Gb and 10Gb networking adapter cards and direct attached storage.

32. Jam Sync
The ability to momentarily apply a running timecode source to a deck, have it remembered and used as the record timecode.

33. LUTs
Cinedeck recorders provide support for 1D and 3D LUTS (Look-Up Tables)
Traditional video cameras process the video signal all the way through the camera path from the sensor(s) to the BNC output or recording. The very nature of that processing throws data away and permanently alters the images in order to fit certain specifications and limitations which put heavy restrictions on the ability to modify the images later.
A LUT is a filter, generally created in a color grading application, which is loaded and applied to an image to alter and refine its appearance in terms of color, contrast, etc.
With Cinedeck, the on-board display can have a non-destructive, real-time LUT loaded and applied to the images so the viewers (Director, Producer, etc.) will have a pretty good idea of what they are really working with. Additionally software versions after 4.3 support recording of proxy and H.264 files with a LUT applied to the recorded image.
The 4K release allows the LUT to be optionally applied to the SDI output for "video village" monitoring and additionally provides the ability to make proxy recordings with the LUT applied.

34. Master & Proxy
ZX 40 and 45 can record all four (2K-HD-SD) inputs with the users' choice of available master and a proxy codecs (for example ProRes HQ and ProRes proxy or uncompressed with H.264 proxy) while ZX20 can record two sources with a user selected master and h.264 proxy codec. Workflow package selection determines codec availability on ZX.
By sending the same signal to multiple channels, all Cinedeck recorders can be configured to record a source with two or more codecs of any sort such as; uncompressed, ProRes, AVC-Intra and JFIF.

35. MOV Flexibility
Cinedecks provide support for recording content as MOV files with a choice of standard interleaved audio, mono audio tracks or audio encoded in separate WAV (wave) files.

36. Non Cinedeck Clips
Cinedecks can play content created on many systems such as Sony SxS, Panasonic P2, GoPro and nanoFlash (including the non-standard nanoFlash XDcamHD 100). Playback of QuickTime files with mono audio channels and support for playback

of QuickTime files generated by Avid and Final Cut editing systems is also supported. Workflow package selection determines codec availability on ZX.

    o All Cinedecks can read solid state card media such as SxS and CF utilizing external readers.

37. Pause Record
Cinedecks support 'Pause Record' where the user can start a long recording session that needs to be encoded as one contiguous file but has breaks in the action.
During recording, the operator can press the 'Pause Record' button whenever needed. Recording does not continue but the file remains open. When the full event has concluded and the user selects Stop, the file is finally closed.

38. Play Multiple Clips
Cinedeck can play an entire folder of clips with a single click and provide an easy way to select one or more clips to play sequentially, in a loop or repeating from start, to finish and back to start (Ping-Pong).

39. Playback
The I/O channels of Cinedeck are full duplex, allowing independent control and activities on each channel. They support multiple playback/record channels which, as of version 4, are capable of independently playing or recording any content at its original resolution and frame rate, independent of what the other channel(s) are playing or recording.
(note: The previously available RXC is designed for frame synched/3D inputs so does not support full duplex control)

40. Playlisting
The Playlist Manager available from version 4.2 is effectively a non-linear editing interface built into the Cinedeck environment.
Playlisting allows adding clips from any source folder to a new or existing playlist.
Clips encoded with different codecs can be mixed but need to be the same format, color depth and frame rate, for example; all 1080p 23.98 10bit (note: Mixing formats will be added in a future release).
Playlists support TV standard sized still images and still image sequences (PNG, JPG. BMP).
Single or multiple clips can be reordered.
Clips can be used in their entirety or can be trimmed with in and out points to restrict playback to a portion (sub clip).

41. Presets
Version 4 and later of the Cinedeck interface includes an expanded capability for saving and restoring user preferences and project settings in an XML format.

42. Project Locking
Version 4.5 and later versions of the Cinedeck interface support project locking. A locked project prevents users from accidently or intentionally changing any operational settings except destination drives. A locked project also still allows users to cycle through previously created scene names. Projects can be intentionally unlocked to allow full access to all settings.

43. RAID Attached Drives
Cinedeck has an available PCIe slot for the addition of network adapter cards as well as custom HBA (Host Bus Adapter) cards to support high-speed local attached RAID storage such as the removable RAID modules from Dulce Systems. The Dulce Systems HBA is essentially a PCIe extender enabling fast access to multiple terabytes of removable storage for Cinedeck recordings and also allowing the Dulce drive chassis to contain a network adapter to provide the Cinedeck with fast 8Gb or 10Gb network connections.

44. Record Time
For practical purposes, record time on Cinedeck recorders is only limited by the size of the destination drive so for example, when recording to a SAN or NAS, record time could be calculated as days or weeks instead of minutes or hours. All Cinedecks also support 'roll-over' recording, utilizing two drives for a single recording.

45. Redundant iles
Each Cinedeck RX3G or MX input can be written as master and proxy file(s) and the decks can write redundant files per input/encoder to multiple destinations, providing the media and connection support the selected bit rate and I/O needs. For example, a 4 channel MX can write a ProRes master and proxy file for each input giving you four primary masters and four primary proxies. Activating redundant record provides four additional or secondary masters and four secondary proxies for a total of sixteen files.

46. Redundant Power
Cinedeck are supported by redundant power sources with auto switching between power sources when one is removed.
    o ZX have two redundant AC power supplies and will sound an audible alarm when only one power supply is active.

47. Remote & Control
Cinedecks provide many options for remote control
    o All decks allow independent RS422 control of each channel.
    o All decks can be the master or slave in a RS422 relationship, allowing control in either direction.
    o With Cinedeck as master over a tape machine, the user is presented with a full array of controls and status indicators from the slave deck. Recordings can be made on either machine, i.e. using the Cinedeck as the source or as the recorder. Insert edits can be made from the Cinedeck to the tape deck.
    o As slave, a Cinedeck can be controlled from a partner machine or via a separate control panel. (note: Current models with RS-422 support require a RS-422 crossover cable for master mode. Slave mode requires a straight through RS-422 cable.)
    o Cinedecks utilize the Grass Valley AMP protocol for control over IP by external devices such as asset management systems and switchers.
    o All Cinedecks can be remote controlled using standard VNC remote access software such as Teamviewer which provide the full user interface at a remote workstation in the next room or miles away.
    o Cinedeck can be driven using several different USB control devices.
    o All Cinedecks can have an external data display, USB mouse and keyboard attached so a common setup is to connect the decks into a KVM switcher for central control of multiple machines. (note: The KVM system must provide DDM (Dynamic Device Mapping) which maintains the connection to all connected devices, regardless of the active device.)

48. Roll-over Recording
All Cinedecks support 'roll-over' recording where two media (identical or dissimilar) can be designated and combined as 'primary' and 'secondary' record destinations, significantly increasing record time.

49. Scene Names
All Cinedeck versions have some support for scene names however from version 4.5, scene names can be created in advance and easily edited and cycled through, to quickly respond to on-set production requirements.

50. Scheduling
Cinedeck support the scheduling of multiple recording events, up to twenty four hours in advance, allowing unattended activation on a channel by channel basis using the EDL function. Enhanced multi-event date & time schedules and an advanced scheduling interface will be developed in combination with an upcoming release.

51. Segment Record
Segment Record, also known as user-defined 'chunking', allows long recordings to be split into clip segments of shorter duration. During recording, each time the user specified duration is reached or the manual 'break' button is pressed, the current file is closed and the next segment file begins. Previous segments can be fully accessed for playing and copying, etc. Additionally, breaking large recordings into smaller pieces allows content to be easily transferred to storage with file size limits such as DVDs or FAT32 drives.

52. Signal Generator
Bersion 4.0 and later versions of the Cinedeck interface provide a multi-purpose signal generator for test image and tone generation. TTest patterns, test pattern sequences, tone with breaks and solo tone for each channel can be used between channels as well as fed downstream for testing connected equipment.

53. Storage Options
All Cinedecks write video and audio recordings as files to low cost and commonly available non-proprietary 2.5" SSD SATA drives.
   o Cinedeck SSD drives are mounted in removable, hot-swappable, dual drive cartridges or 'sleds'.
   o Additional sleds as well as portable and installable receiving chassis are available to enable easy 'sneaker-net' workflows.
   o Currently, Cinedeck only recommend and support Samsung Pro and EVO series SSD drives.
   o For recording and playback, all Cinedecks can also utilize external USB* and / or eSATA* and / or network storage including NAS (network attached storage) and SAN (storage area network) systems requiring client software. Additionally, the Cinedeck operating system can be setup to support iSCSI file systems.
   o Cinedecks are Windows 7 Embedded based so fully support SMB shares and client software is often available for SAN installations.
   o Cinedeck ZX have an available PCIe slot for 8Gb fiber or 10Gb Ethernet cards as well as direct attached storage such as the drive arrays from Dulce Systems.

(*note: All external and network recording devices and plans should be extremely well tested before utilizing in a production environment.)

(*Drive assemblies of the same model from the same manufacturer can differ in firmware and internal hardware used so successful tests are drive specific and as such do not guarantee successful recordings with other units.)

54. Control
With the advanced control option, each Cinedeck channel can be tethered with a Spirit Telecine Controller for film to file transfers. The Spirit system takes RS-422 control of both the Cinedeck and the film scanner to manage the ingest process, can shuttle and cue the film and trigger recording of single clips, multiple clips as well as single "assemble edited" clips containing multiple film segments.

55. Timecode
Cinedecks provide internally generated timecode, can accept embedded SDI timecode or external 'LTC' and display the data on screen and optionally burn the data into the video of selected files while recording the data with the incoming source. IRIG-B timecode is also supported.

IRIG support is optional on the ZX, Per channel pair timecode input is standard on ZX, Master timecode input is optional on ZX.

56. Timecode offset
Cinedeck version 4.5 and newer supports several timecode offset options. The main input timecode offset is used to change correct large timecode differences such as changing the hour of a source timecode from 1:00:00:00 hour to 7:00:00:00 or local time to GMT. There are also several fine timecode offset adjustments which can be made to each timecode source to compensate for small latency issues when using the Cinedeck with other devices.

57. Touch Display
Cinedecks can be configured with an optional 7" LCD touch display for viewing video and manipulating the user interface. All Cinedecks can have an external display attached for viewing video and manipulating the system. Cinedeck recorders can be configured to use an external touch display.

58. Transcoding
The full duplex, independent channel control of Cinedeck allows selecting content to play and simultaneously encode in any other format in real-time. For example, some uncompressed source content could be transcoded in real-time, to AVC-Intra.

59. Upcoming Features
FIFO Loop Record / Time Delay
Expanded transcoding
Advanced scheduling
Watermarking

60. Updates
Cinedeck recorders are expressly designed to be enhanced with new features and functions, extending the life and relevance of the systems. Cinedeck delivers several major updates each year.
Updates come as *.exe files which are generally about 250MB, downloadable and usually take about two minutes to apply.
Each Cinedeck ships with a system restore disc to use for resetting the deck back to a complete clean factory state. The re-imaging process takes about 10 minutes.

Some optional and upcoming features may require the purchase of additional licenses. Cinedecks are designed from the ground up to allow system and interface customizations as well as completely custom OEM products. Being customer and engineering oriented means the Cinedeck engineering team is always open and always interested in discussing specialized integration, additional features and feature modifications.

Extended hardware warranties with priority support and software maintenance including all major updates are available to extend factory warranty and support beyond the first year.

61. VBR/CBR encoding
Some codecs such as H.264 and ProRes support both CBR (constant bitrate) and VBR (variable bitrate) encoding. The Cinedeck interface allows selection of CBR and VBR on a per encode basis. CBR can be especially important in the Cinedeck environment as the Cinedeck insert editing function requires using CBR encoded source and destination content.

62. Wrappers
Cinedeck uses Avid Op-Atom MXF and MOV wrappers in combination with the most common use of the appropriate codec, i.e., DNxHD can be wrapped as MXF OpAtom for true Avid native integration but many of the codec options available on every Cinedeck provide a choice of wrappers including. Workflow package selection determines wrapper availability on ZX
Avid MXF Op-Atom
MXF Op-1A (AS-11/DPP compliant) See
MOV (Interleaved, Mono or MOV video with separate WAVE audio)
AVI
MP4

63. XML data
Each recording session can be accompanied by clip specific *.xml files. The completed *.xml files contain clip specific metadata which can be imported into asset managements systems and the like. The destination folder can also be selected for the xml files.

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